

10/089,776

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	4	time\$1resolved adj (fluorescen\$2 or fluoroimmunoassay or immunoassay) same lanthanoid	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/20 09:14
L2	1980	(time\$1resolved or time adj resolved) adj (fluorescen\$2 or fluoroimmunoassay or immunoassay)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/20 09:18
L3	1623	time\$1resolved adj (fluorescen\$2 or fluoroimmunoassay or immunoassay)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/20 09:18
L4	10	I3 and lanthanoid	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/20 09:19
L5	790	I3 and europium	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/20 09:22
L6	459	I3 and (lanthanide\$1 or lanthanoid\$1)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/20 09:23
L7	901	I3 and (lanthanide\$1 or lanthanoid\$1 or europium)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/20 09:23
L8	445	I7 and cytokine\$1	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/20 09:24

L9	416	I8 and biotin	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/20 09:24
L10	410	I9 and (solid adj phase or microtitre or microtiter or bead\$1)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/20 09:35
L11	321	I9 and (solid adj phase)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/20 09:30
L12	0	I10 and @ad<="2001"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/20 09:40
L13	203	I10 and @ay<="2001"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/20 09:42
L14	64	I10 and @ay<="2000"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/20 09:49
L15	398	I10 and europium	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/20 09:45
L16	12	I10 not I15	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/20 09:46

L17	64	I14 and fluorescen\$2	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/20 09:50
L18	63	I17 and (streptoavidin or streptavidin or avidin)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/20 09:52

10/089,776

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FILE 'HOME' ENTERED AT 10:49:33 ON 20 JUN 2005

=> FIL REGISTRY

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

0.21

0.21

FILE 'REGISTRY' ENTERED AT 10:49:45 ON 20 JUN 2005

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STRUCTURE FILE UPDATES: 19 JUN 2005 HIGHEST RN 852520-85-5

DICTIONARY FILE UPDATES: 19 JUN 2005 HIGHEST RN 852520-85-5

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\*  
\* The CA roles and document type information have been removed from \*  
\* the IDE default display format and the ED field has been added, \*  
\* effective March 20, 2005. A new display format, IDERL, is now \*  
\* available and contains the CA role and document type information. \*  
\*  
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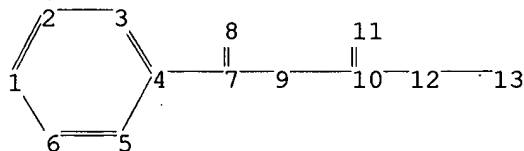
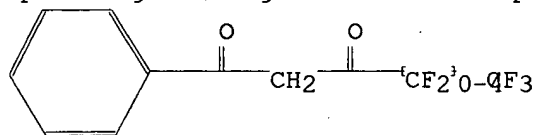
Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:

<http://www.cas.org/ONLINE/DBSS/registryss.html>

=>

Uploading C:\Program Files\Stnexp\Queries\10089776.str



chain nodes :

7 8 9 10 11 12 13

ring nodes :

1 2 3 4 5 6

chain bonds :

4-7 7-8 7-9 9-10 10-11 10-12 12-13

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6  
exact/norm bonds :  
7-8 10-11  
exact bonds :  
4-7 7-9 9-10 10-12 12-13  
normalized bonds :  
1-2 1-6 2-3 3-4 4-5 5-6  
isolated ring systems :  
containing 1 :

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:CLASS 8:CLASS 9:CLASS 10:CLASS  
11:CLASS 12:CLASS 13:CLASS

L1 STRUCTURE UPLOADED

=> s l1

SAMPLE SEARCH INITIATED 10:50:06 FILE 'REGISTRY'  
SAMPLE SCREEN SEARCH COMPLETED - 92 TO ITERATE

100.0% PROCESSED 92 ITERATIONS 16 ANSWERS  
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE \*\*COMPLETE\*\*  
BATCH \*\*COMPLETE\*\*  
PROJECTED ITERATIONS: 1265 TO 2415  
PROJECTED ANSWERS: 80 TO 560

L2 16 SEA SSS SAM L1

=> s l1 sss full

FULL SEARCH INITIATED 10:50:14 FILE 'REGISTRY'  
FULL SCREEN SEARCH COMPLETED - 1910 TO ITERATE

100.0% PROCESSED 1910 ITERATIONS 251 ANSWERS  
SEARCH TIME: 00.00.01

L3 251 SEA SSS FUL L1

=> FIL CAPLUS

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	161.33	161.54

FILE 'CAPLUS' ENTERED AT 10:50:37 ON 20 JUN 2005  
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.  
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.  
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This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s l3

L4 932 L3

=> s l3 and (time resolved or time!resolved)

932 L3

1854565 TIME

1344224 TIMES

2980005 TIME

(TIME OR TIMES)

141072 RESOLVED

1 RESOLVEDS

141073 RESOLVED

(RESOLVED OR RESOLVEDS)

41576 TIME RESOLVED

(TIME(W) RESOLVED)

0 TIME!RESOLVED

L5 41 L3 AND (TIME RESOLVED OR TIME!RESOLVED)

=> s l3 and (time resolved or time?resolved)

'?' TRUNCATION SYMBOL NOT VALID WITHIN 'TIME?RESOLVED'

The truncation symbol ? may be used only at the end of a search term. To specify a variable character within a word use '!', e.g., 'wom!n' to search for both 'woman' and 'women'. Enter "HELP TRUNCATION" at an arrow prompt (=>) for more information.

=> s l5 and (lanthanide or lanthanoid or europium)

37754 LANTHANIDE

10834 LANTHANIDES

41858 LANTHANIDE

(LANTHANIDE OR LANTHANIDES)

1809 LANTHANOID

714 LANTHANOIDS

2221 LANTHANOID

(LANTHANOID OR LANTHANOIDS)

56878 EUROPIUM

8 EUROPIUMS

56879 EUROPIUM

(EUROPIUM OR EUROPIUMS)

L6 37 L5 AND (LANTHANIDE OR LANTHANOID OR EUROPIUM)

=> l4 and (dissociation enhanced or DELFIA or time-resolved or TR-FIA)

L4 IS NOT A RECOGNIZED COMMAND

The previous command name entered was not recognized by the system. For a list of commands available to you in the current file, enter "HELP COMMANDS" at an arrow prompt (=>).

=> l4 and (dissociation enhanced or DELFIA)

L4 IS NOT A RECOGNIZED COMMAND

The previous command name entered was not recognized by the system. For a list of commands available to you in the current file, enter "HELP COMMANDS" at an arrow prompt (=>).

=> s l4 and (dissociation enhanced or DELFIA)

72272 DISSOCIATION

```

399 DISSOCIATIONS
72543 DISSOCIATION
      (DISSOCIATION OR DISSOCIATIONS)
183615 DISSOCN
1886 DISSOCNS
184414 DISSOCN
      (DISSOCN OR DISSOCNS)
207199 DISSOCIATION
      (DISSOCIATION OR DISSOCN)
471679 ENHANCED
5 ENHANCEDS
471683 ENHANCED
      (ENHANCED OR ENHANCEDS)
105 DISSOCIATION ENHANCED
      (DISSOCIATION (W) ENHANCED)
233 DELFIA
3 DELFIAS
233 DELFIA
      (DELFIA OR DELFIAS)
L7      1 L4 AND (DISSOCIATION ENHANCED OR DELFIA)

=> dup rem 16 17
PROCESSING COMPLETED FOR L6
PROCESSING COMPLETED FOR L7
L8      37 DUP REM L6 L7 (1 DUPLICATE REMOVED)
      ANSWERS '1-37' FROM FILE CAPLUS

=> s 18 and biotin
L9      37 S L8
      27453 BIOTIN
      106 BIOTINS
      27462 BIOTIN
      (BIOTIN OR BIOTINS)
L10     4 L9 AND BIOTIN

=> s 18 and (streptavidin or streptoavidin or avidin)
L11     37 S L8
      8432 STREPTAVIDIN
      33 STREPTAVIDINS
      8437 STREPTAVIDIN
      (STREPTAVIDIN OR STREPTAVIDINS)
      32 STREPTOAVIDIN
      7474 AVIDIN
      4230 AVIDINS
      8977 AVIDIN
      (AVIDIN OR AVIDINS)
L12     18 L11 AND (STREPTAVIDIN OR STREPTOAVIDIN OR AVIDIN)

=> dup rem 110 112
PROCESSING COMPLETED FOR L10
PROCESSING COMPLETED FOR L12
L13     18 DUP REM L10 L12 (4 DUPLICATES REMOVED)
      ANSWERS '1-18' FROM FILE CAPLUS

=> s 14 and (time resolved or time!resolved or time-resolved)
1854565 TIME
1344224 TIMES
2980005 TIME
      (TIME OR TIMES)
141072 RESOLVED
1 RESOLVEDS
141073 RESOLVED
      (RESOLVED OR RESOLVEDS)

```

41576 TIME RESOLVED  
 (TIME(W)RESOLVED)  
 0 TIME!RESOLVED  
 1854565 TIME  
 1344224 TIMES  
 2980005 TIME  
 (TIME OR TIMES)  
 141072 RESOLVED  
 , 1 RESOLVEDS  
 141073 RESOLVED  
 (RESOLVED OR RESOLVEDS)  
 41576 TIME-RESOLVED  
 (TIME(W)RESOLVED)  
 L14 41 L4 AND (TIME RESOLVED OR TIME!RESOLVED OR TIME-RESOLVED)

=> dup rem 15 l14  
 PROCESSING COMPLETED FOR L5  
 PROCESSING COMPLETED FOR L14  
 L15 41 DUP REM L5 L14 (41 DUPLICATES REMOVED)  
 ANSWERS '1-41' FROM FILE CAPLUS

=> d l13 ibib abs hitstr tot

L13 ANSWER 1 OF 18 CAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 1  
 ACCESSION NUMBER: 2001:247614 CAPLUS  
 DOCUMENT NUMBER: 134:263165  
 TITLE: Highly sensitive **time-resolved**  
 fluorescence immunoassay for detecting cytokine  
 INVENTOR(S): Tashiro, Kei; Honjo, Tasuku; Ikegawa, Masaya;  
 Matsumoto, Kazuko  
 PATENT ASSIGNEE(S): Japan Science and Technology Corp., Japan  
 SOURCE: PCT Int. Appl., 62 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Japanese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001023891	A1	20010405	WO 2000-JP6743	20000928
W: AU, CA, CN, CZ, HU, JP, KR, RU, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
CA 2385613	AA	20010405	CA 2000-2385613	20000928
AU 2000074486	A5	20010430	AU 2000-74486	20000928
EP 1221616	A1	20020710	EP 2000-962957	20000928
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY				
JP 3586243	B2	20041110	JP 2001-527226	20000928
JP 2004279429	A2	20041007	JP 2004-162594	20040531
PRIORITY APPLN. INFO.:			JP 1999-277629	A 19990929
			JP 2001-527226	A3 20000928
			WO 2000-JP6743	W 20000928

AB A highly sensitive method is provided for detecting a cytokine (e.g., CXC chemokine, stromal-derived factor-1) in a body fluid (e.g., serum, whole blood) sample by a **time-resolved** fluorescence immunoassay (TR-FIA). The method comprises a process for forming on a solid phase a complex composed of a trapped cytokine and a fluorescent moiety forming a coordination structure with a **lanthanoid** metal (e.g., **europium**), and a process for measuring the fluorescence from the fluorescent moiety. The complex is formed by binding five components sequentially in this order: (a) a first antibody possessing a



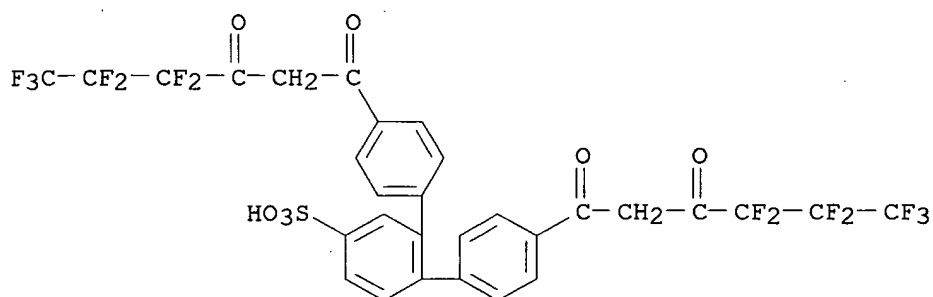
moiety bound to the solid phase and a region capable of binding with cytokine; (b) cytokine; (c) a second antibody possessing a region capable of binding with cytokine and a moiety bound with **biotin**; (d) a connector possessing streptavidin or avidin and a fluorescent moiety capable of forming a coordination structure with a **lanthanoid** metal ion; and (e) a **lanthanoid** metal ion. The fluorescent moiety (e.g., 4,4'-bis(1",1",1",2",2",3",3"-heptafluoro-4",6"-hexadione-6"-yl)-sulfo-o-terphenyl) is represented by the general formula 3,5-(C3F7COCH2CO-p-C6H4)C6H3SO3N.

IT 331722-27-1

RL: ARG (Analytical reagent use); PEP (Physical, engineering or chemical process); ANST (Analytical study); PROC (Process); USES (Uses)  
(highly sensitive **time-resolved** fluorescence immunoassay for detecting cytokine)

RN 331722-27-1 CAPLUS

CN [1,1':2',1''-Terphenyl]-4'-sulfonic acid, 4,4''-bis(4,4,5,5,6,6,6-heptafluoro-1,3-dioxohexyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 2 OF 18 CAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 2

ACCESSION NUMBER: 2000:417997 CAPLUS

DOCUMENT NUMBER: 133:40229

TITLE: A new analytical method using a ligand labeled with a fluorescent substance

INVENTOR(S): Matsuya, Takeshi

PATENT ASSIGNEE(S): Yatron Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000171467	A2	20000623	JP 1998-346878	19981207
PRIORITY APPLN. INFO.:			JP 1998-346878	19981207

AB A new, convenient and highly sensitive anal. method is provided for measuring an antigen, an antibody, or a nucleic acid (e.g, DNA, RNA) using an antibody, an antigen or a probe, resp., as a ligand labeled with a fluorescent substance. The first ligand capable of specifically binding with an objective substance for anal. is immobilized within a range of excitation light irradiation or a central region on the reaction vessel surface holding a sample. This immobilized first ligand is made contact with a sample for anal., and with a fluorescent substance-labeled second ligand capable of specifically binding with the objective substance for anal. at the site different from the first ligand. Upon irradiating the excitation light specific to the fluorescent label substance, the

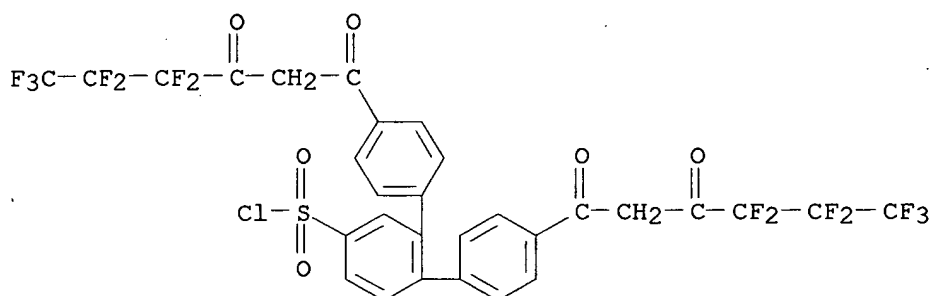
fluorescence is detected from the label on the second ligand bound with the complex between the immobilized first ligand and the objective substance for anal. Human  $\alpha$ -fetoprotein (AFP) in a blood sample was measured with a high sensitivity by this method using anti-human AFP monoclonal antibody and a combination of **biotin**-labeled anti-AFP polyclonal antibody and **europium**-labeled streptavidin-BSA polymer.

IT 200862-70-0, BHHCT

RL: RCT (Reactant); RACT (Reactant or reagent)  
(BHHCT; new anal. method using ligand labeled with fluorescent substance)

RN 200862-70-0 CAPLUS

CN [1,1':2',1''-Terphenyl]-4'-sulfonyl chloride, 4,4''-bis(4,4,5,5,6,6,6-heptafluoro-1,3-dioxohexyl)- (9CI) (CA INDEX NAME)



L13 ANSWER 3 OF 18 CAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 3

ACCESSION NUMBER: 1999:811457 CAPLUS

DOCUMENT NUMBER: 132:47234

TITLE: Neutral enhancement of **lanthanides** for **time resolved** fluorescence

INVENTOR(S): Mullinax, Thomas Robert; Cody, Margaret R.; Bobrow, Mark N.

PATENT ASSIGNEE(S): Nen Life Science Products, Inc., USA

SOURCE: PCT Int. Appl., 41 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9966333	A1	19991223	WO 1999-US13368	19990615
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
US 6030840	A	20000229	US 1998-94628	19980615
PRIORITY APPLN. INFO.:			US 1998-94628	A 19980615
OTHER SOURCE(S):	MARPAT 132:47234			

AB A method for the spectroscopic determination of a marker comprises: (a) contacting

chelated **lanthanide** metal ions bound to a marker with a buffered solution comprising a detergent, an enhancer reagent and a polyanion, wherein said buffer maintains the pH of the solution within the range of about 3.5 to about 11.5 and said polyanion is present in sufficient concentration such that said **lanthanide** metal ion disassocs. from said chelate complex and reassocs. with said enhancer reagent, thereby transferring said **lanthanide** metal ion into fluorescent form; and (b) determining the amount of **lanthanide** metal ion liberated from the marker as a measure of the amount of marker present by subjecting the solution to a short radiation

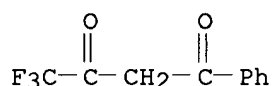
pulse and detecting the fluorescence of the **lanthanide** metal ion after the fluorescence from any background sources substantially has ceased. A HIV-1 p24 ELISA with **time-resolved** fluorescence detection used anti-p24 monoclonal antibody-coated wells, biotinylated rabbit anti-p24 antibodies, and streptavidin-**europium** EDTA chelate conjugate. The enhancement solution contained 2-naphthoyltrifluoroacetone, trioctylphosphine oxide, citrate (or L-malate), imidazole and Triton X-100. The sensitivity was 1 pg/mL with a dynamic range from 0.0-1000 pg/mL.

IT 326-06-7

RL: ARG (Analytical reagent use); PEP (Physical, engineering or chemical process); RCT (Reactant); ANST (Analytical study); PROC (Process); RACT (Reactant or reagent); USES (Uses)  
(as enhancer reagent; neutral enhancement of **lanthanides** for **time resolved** fluorescence)

RN 326-06-7 CAPLUS

CN 1,3-Butanedione, 4,4,4-trifluoro-1-phenyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 4 OF 18 CAPLUS COPYRIGHT 2005 ACS on STN DUPLICATE 4

ACCESSION NUMBER: 1998:7737 CAPLUS

DOCUMENT NUMBER: 128:113765

TITLE: Highly sensitive **time-resolved** fluoroimmunoassay of human immunoglobulin E by using a new **europium** fluorescent chelate as a label

AUTHOR(S): Yuan, Jingli; Wang, Guilan; Kimura, Hiroko; Matsumoto, Kazuko

CORPORATE SOURCE: Department of Chemistry, Waseda University, Tokyo, 169, Japan

SOURCE: Analytical Biochemistry (1997), 254(2), 283-287  
CODEN: ANBCA2; ISSN: 0003-2697

PUBLISHER: Academic Press

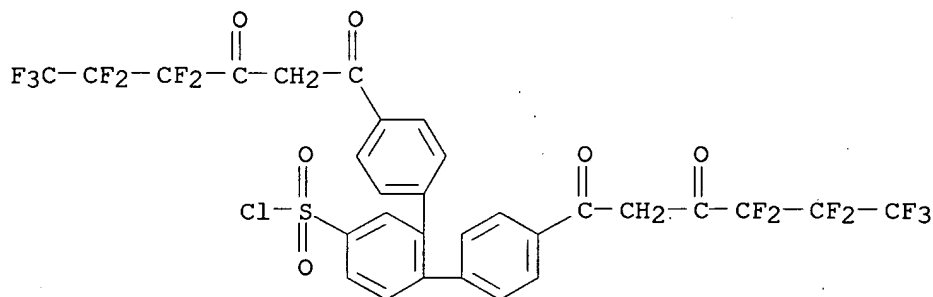
DOCUMENT TYPE: Journal

LANGUAGE: English

AB A new **europium** fluorescent chelate, 4,4'-bis(1",1",1",2",2",3",3"-heptafluoro-4",6"-hexanedione-6"-yl)-chlorosulfo-o-terphenyl (BHHCT)-Eu<sup>3+</sup>, was used as a label for highly sensitive **time-resolved** fluoroimmunoassay of human IgE. Two assay formats were employed in the anal. In the first format, an immuno-conjugate of rabbit anti-human IgE antibody-human IgE-biotinylated goat anti-human IgE antibody-BHHCT-Eu<sup>3+</sup>-labeled SA (or BHHCT-Eu<sup>3+</sup>-labeled BSA-SA; BSA, bovine serum albumin; SA, streptavidin) was used for measurement. The method gives the detection limits of 3.6+10<sup>-2</sup> IU/mL (labeled SA) and 1.1+10<sup>-2</sup> IU/mL (labeled SA-BSA). In the second format, an immunoconjugate of goat anti-human IgE antibody-human IgE-rabbit anti-human IgE antibody-biotinylated goat anti-rabbit IgG antibody-BHHCT-Eu<sup>3+</sup>-labeled SA (or BHHCT-Eu<sup>3+</sup>-labeled BSA-SA) was used for measurement. The detection limits of these methods are 3.0+10<sup>-3</sup> IU/mL (labeled SA) and 1.5+10<sup>-3</sup> IU/mL (labeled BSA-SA). The above detection limits are one to two orders of magnitude lower than those of the conventional RIA and enzyme immunoassay. The CV of the present method is less than 7%, and the recovery is in the range of 85-105% for serum samples.

IT 200862-70-0D, **europium** 3+ complexes

RL: RCT (Reactant); RACT (Reactant or reagent)  
 (streptavidin conjugation to)  
 RN 200862-70-0 CAPLUS  
 CN [1,1':2',1''-Terphenyl]-4'-sulfonyl chloride, 4,4''-bis(4,4,5,5,6,6,6-heptafluoro-1,3-dioxohexyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 5 OF 18 CAPLUS. COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 2005:66160 CAPLUS  
 DOCUMENT NUMBER: 142:254538  
 TITLE: Eu(III)-beta-diketone fluorescent marker and its application  
 INVENTOR(S): Yuan, Jingli; Wang, Guilan  
 PATENT ASSIGNEE(S): Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Peop. Rep. China  
 SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 22 pp. CODEN: CNXXEV  
 DOCUMENT TYPE: Patent  
 LANGUAGE: Chinese  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1482459	A	20040317	CN 2002-132910	20020911
PRIORITY APPLN. INFO.:			CN 2002-132910	20020911

AB The application of a complex of Eu<sup>3+</sup> with tetradentate beta-diketone ligand (its structure on the top of page 2; here: R = chlorosulfonyl, isothiocyano, NH<sub>2</sub>, or hydrazinesulfonyl and R<sub>1</sub> = C<sub>1</sub>-5 alkyl, C<sub>1</sub>-5 perfluoroalkyl, Ph, or perfluorophenyl) as fluorescent marker for labeling protein (such as antibody, antigen, **avidin**, **streptavidin**, bovine serum albumin, or hapten-BSA conjugate) is presented. The process for labeling protein comprises dissolving protein in NaHCO<sub>3</sub> buffer (its pH 9.0-9.5), allowing to react with beta-diketone at room temperature for 1-2 h, removing the un- reacted beta-diketone via dialysis or column chromatog., chelating with EuCl<sub>3</sub> solution, adding antiseptic and protein activity stabilizing agent, and storing at low temperature. The molar ratio of beta-diketone to Eu<sup>3+</sup> is 1:1-2. The labeled protein may be used for determination

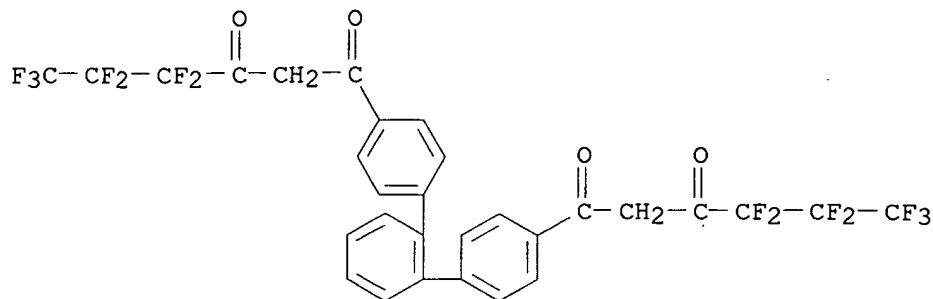
of bioactive substance by **time-resolved** fluorometry.

IT 200862-69-7 200862-70-0

RL: BSU (Biological study, unclassified); BIOL (Biological study)  
 (Eu(III)-beta-diketone fluorescent marker and its application)

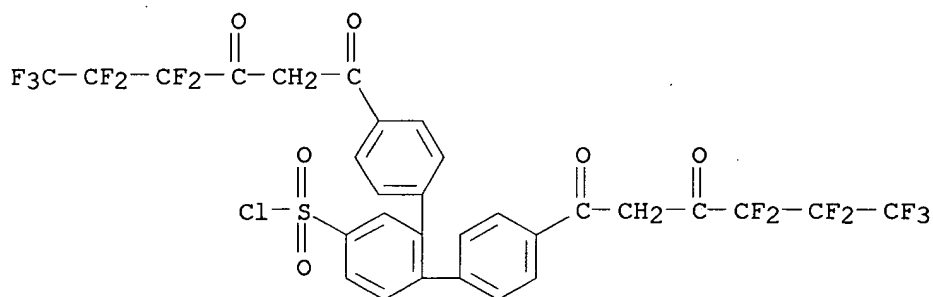
RN 200862-69-7 CAPLUS

CN 1,3-Hexanedione, 1,1'-[1,1':2',1''-terphenyl]-4,4''-diylbis[4,4,5,5,6,6,6-heptafluoro- (9CI) (CA INDEX NAME)



RN 200862-70-0 CAPLUS

CN [1,1':2',1''-Terphenyl]-4'-sulfonyl chloride, 4,4''-bis(4,4,5,5,6,6,6-heptafluoro-1,3-dioxohexyl)- (9CI) (CA INDEX NAME)



L13 ANSWER 6 OF 18 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:794400 CAPLUS

DOCUMENT NUMBER: 142:2869

TITLE: Development of functionalized fluorescent **europium** nanoparticles for biolabeling and **time-resolved** fluorometric applications

AUTHOR(S): Tan, Mingqian; Wang, Guilan; Hai, Xiaodan; Ye, Zhiqiang; Yuan, Jingli

CORPORATE SOURCE: Department of Analytical Chemistry, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian, 116012, Peop. Rep. China

SOURCE: Journal of Materials Chemistry (2004), 14(19), 2896-2901

CODEN: JMACEP; ISSN: 0959-9428

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

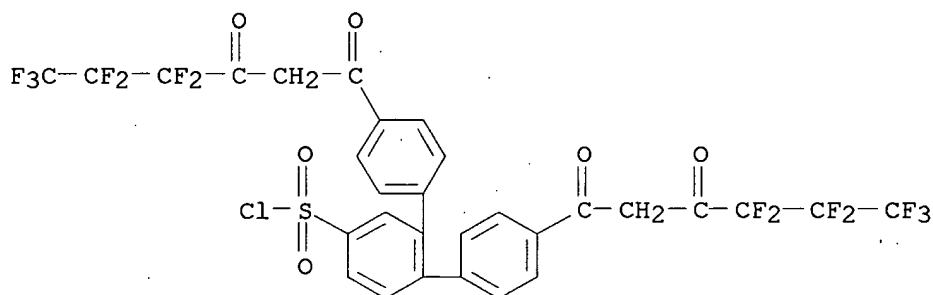
LANGUAGE: English

AB A covalent binding-copolymer. method was developed to prepare silica-based fluorescent **europium** nanoparticles that can be used for biolabeling and highly sensitive **time-resolved** fluorescence bioassays. The nanoparticles were prepared in a water-in-oil (W/O) microemulsion consisting of a conjugate of (3-aminopropyl)triethoxysilane bound to a fluorescent Eu<sup>3+</sup> chelate, 4,4''-bis(1'',1'',1'',2'',2'',3'',3''-heptafluoro-4'',6''-hexanedion-6''-yl)chlorosulfo-o-terphenyl-Eu<sup>3+</sup> (APS-BHHCT-Eu<sup>3+</sup>), free (3-aminopropyl)triethoxysilane (APS), tetra-Et orthosilicate (TEOS), Triton X-100, n-octanol, water, and cyclohexane by copolymer. of APS-BHHCT-Eu<sup>3+</sup>, APS, and TEOS with aqueous ammonia. Characterization by TEM and fluorometric methods indicate that the nanoparticles are spherical and uniform in size, 36±4 nm in diameter, highly photostable, and strongly fluorescent, having a fluorescence quantum yield of 50.6% and a long fluorescence lifetime of 384 μs. The amino groups directly introduced

to the surface of the nanoparticles by using free (3-aminopropyl)triethoxysilane in the nanoparticle preparation made the surface modification and bioconjugation of the nanoparticles easier. The nanoparticles were used for **streptavidin** labeling, and the nanoparticle-labeled **streptavidin** was used in sandwich-type **time-resolved** fluoroimmunoassays (TR-FIA) of carcinoembryonic antigens (CEA) and hepatitis B surface antigens (HBsAg) in human sera. The methods give detection limits of 1.9 pg ml<sup>-1</sup> for CEA, and 23 pg ml<sup>-1</sup> for HBsAg. The concns. of HBsAg in 30 human serum samples were determined, and the results were compared with those independently determined

by an established TR-FIA method using the BHHCT-Eu<sup>3+</sup>-labeled **streptavidin**. A good correlation was obtained with a correlation coefficient of 0.993.

IT **200862-70-0D**, complex with APS and Eu<sup>3+</sup>  
 RL: NUU (Other use, unclassified); USES (Uses)  
 (development of functionalized fluorescent **europium** nanoparticles for biolabeling and **time-resolved** fluoroimmunoassays of carcinoembryonic antigens and hepatitis B surface antigens in human sera)  
 RN 200862-70-0 CAPLUS  
 CN [1,1':2',1''-Terphenyl]-4''-sulfonyl chloride, 4,4''-bis(4,4,5,5,6,6,6-heptafluoro-1,3-dioxohexyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 7 OF 18 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:157320 CAPLUS

DOCUMENT NUMBER: 140:420151

TITLE: Novel fluorescent **europium** chelate-doped silica nanoparticles: preparation, characterization and **time-resolved** fluorometric application

AUTHOR(S): Ye, Zhiqiang; Tan, Mingqian; Wang, Guilan; Yuan, Jingli

CORPORATE SOURCE: Department of Analytical Chemistry, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian, 116012, Peop. Rep. China

SOURCE: Journal of Materials Chemistry (2004), 14(5), 851-856  
 CODEN: JMACEP; ISSN: 0959-9428

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Novel fluorescent **europium**(III) chelate-doped silica nanoparticles were prepared and characterized as a new type of fluorescence probe for quant. bioassay. The preparation was carried out in a water-in-oil (w/o) microemulsion consisting of a strongly fluorescent Eu<sup>3+</sup> chelate, 4,4'-bis(1'',1'',1'',2'',2'',3'',3''-heptafluoro-4'',6''-hexanedion-6''-yl)-o-terphenyl-Eu<sup>3+</sup> (BHHT-Eu<sup>3+</sup>), surfactant (Triton X-100), co-surfactant

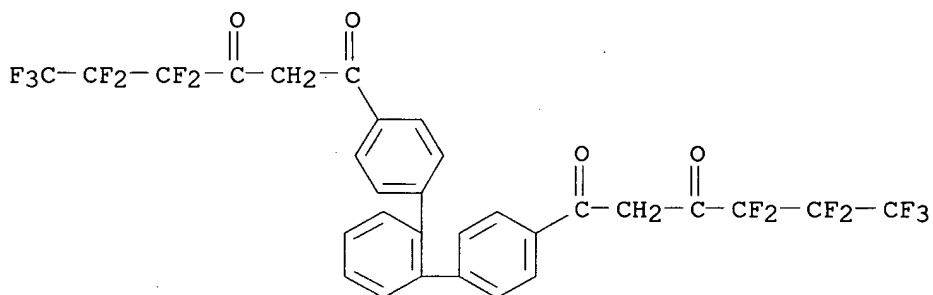
(n-hexanol, n-heptanol or n-octanol), aqueous phase (H<sub>2</sub>O or D<sub>2</sub>O) and oil phase (cyclohexane) by controlling the hydrolysis of tetraethylorthosilicate (TEOS). The effects of different co-surfactants and aqueous phases on the size and fluorescence lifetime of the nanoparticles were investigated. The results reveal that the size of the nanoparticles is decreased with a change of co-surfactants from n-hexanol to n-octanol, and the fluorescence lifetime of the nanoparticles is increased with a change of aqueous phase from H<sub>2</sub>O to D<sub>2</sub>O. A new method was established for the surface modification and bioconjugation of the nanoparticles. Nanoparticle-labeled **streptavidin** (SA) was used for the **time-resolved** fluoroimmunoassay of human hepatitis B surface antigen (HBsAg). The result shows that the new fluorescent **europium**(III) chelate-doped silica nanoparticles are suitable to be used as a fluorescence probe for highly sensitive bioassays.

IT **200862-69-7DP, europium complex**

RL: ARU (Analytical role, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); PROC (Process)  
(fluorescent **europium** chelate-doped silica nanoparticles  
**time-resolved** fluorometric application)

RN 200862-69-7 CAPLUS

CN 1,3-Hexanedione, 1,1'-[1,1':2',1''-terphenyl]-4,4''-diylbis[4,4,5,5,6,6,6-heptafluoro- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 8 OF 18 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:319853 CAPLUS

DOCUMENT NUMBER: 138:337834

TITLE: Preparation of aryl- $\beta$ -diketones as luminous compounds and labeling reagents using the same

INVENTOR(S): Saito, Michihiro; Pretsch, Ernoe

PATENT ASSIGNEE(S): Hitachi High Technologies Corporation, Japan

SOURCE: PCT Int. Appl., 51 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003033447	A1	20030424	WO 2002-JP10511	20021010
W: CN, JP, KR, US				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
EP 1437338	A1	20040714	EP 2002-772986	20021010
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				

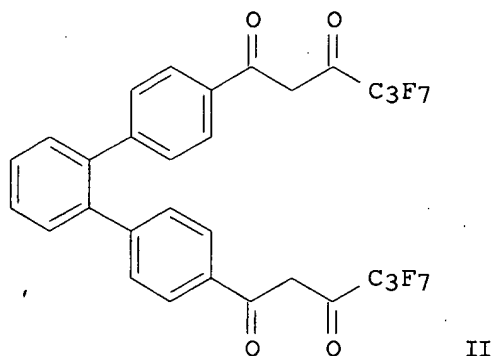
US 2005033039  
PRIORITY APPLN. INFO.:

A1 20050210  
MARPAT 138:337834

US 2004-491788  
JP 2001-312562  
WO 2002-JP10511

20041008  
A 20011010  
W 20021010

OTHER SOURCE(S):  
GI



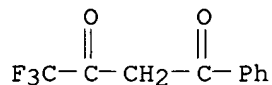
- AB Disclosed are compds. represented by the following general formula R-Y-(-X-Phe-COCH<sub>2</sub>COCH<sub>2</sub>NF<sub>2n+1</sub>)<sub>m</sub> (wherein R represents hydrogen, alkyl, Ph or a group capable of binding to a protein, a peptide, an amino acid, a nucleic acid or a base; Y represents CH<sub>2</sub>, a carbon ring or a heterocycle; X represents O, S, NH, CH<sub>2</sub>, OCH<sub>2</sub>, CONH or NHCO; Phe represents phenylene; n is an integer of from 1 to 5; and m is 1, 2 or 3), luminous complexes comprising the above compds. with rare earth ions, labeling reagents comprising the compds. or luminous complexes as described above, and a method of labeling a protein, a peptide, an amino acid, a nucleic acid or a base using the above labeling reagents. When these compds. are complexed with metal ions, they emit fluorescence, delayed fluorescence, or phosphorescence and are suitable as labeling agents for **time-resolved** fluorometry, delayed phosphorimetry, or energy-transfer fluorometry used in nucleic acid detection, immunoassay, or chemiluminescent method. Thus, a mixture of 1,2-bis(bromomethyl)benzene 5.0, 4-acetylphenylboronic acid 13.6, CsCO<sub>3</sub> 18.5 g, 50 mL THF, and 5 mL H<sub>2</sub>O was stirred at 70° for 30 min, treated with 1.5 g PdCl<sub>2</sub>(dppf).CH<sub>2</sub>Cl<sub>2</sub> [dppf = 1,1'-bis(diphenylphosphino)ferrocene], and heated for 24 h to give, after workup and silica gel chromatog., 15% 1,2-bis(4-acetylbenzyl)benzene (I). I 300, C<sub>3</sub>F<sub>7</sub>CO<sub>2</sub>Et 440, NaOMe 99 mg, and 12 mL Et<sub>2</sub>O were stirred at room temperature for 1 day to give, after workup and silica gel chromatog., 100 mg 1,2-bis[4-(4,4,5,5,6,6,6-heptafluoro-3-oxohexanoyl)benzyl]benzene (II). When complexed with EuCl<sub>3</sub>.6H<sub>2</sub>O, 1,2-bis[4-(4,4,5,5,6,6,6-heptafluoro-3-oxohexanoyl)phenoxy]benzene (preparation given) exhibited the highest signal intensity in **time-resolved** fluorometry among other β-ketones including II. Immunoassay of human anti-α-fetoprotein (AFP) antibody and anti-human C reactive protein (CRP) antibody by **time-resolved** fluorometry was carried out using **streptavidin** labeled by aryl-β-ketone- **europium**-complexes.
- IT 326-06-7DP, chlorosulfonyl derivative, **streptavidin** labeled by, **europium**-complex 53580-21-5DP, chlorosulfonyl derivative, **streptavidin** labeled by, **europium**-complex 171666-86-7DP, chlorosulfonyl derivative, **streptavidin** labeled by, **europium**-complex 200862-69-7DP, chlorosulfonyl derivative, **streptavidin** labeled by, **europium**-complex 515163-00-5DP, chlorosulfonyl derivative, **streptavidin** labeled by, **europium**-complex 515163-02-7DP, chlorosulfonyl derivative, **streptavidin**



labeled by, **europium**-complex **515163-03-8DP**,  
 chlorosulfonyl derivative, **streptavidin** labeled by, **europium**  
 -complex **515163-04-9DP**, chlorosulfonyl derivative,  
**streptavidin** labeled by, **europium**-complex  
 RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST  
 (Analytical study); PREP (Preparation); USES (Uses)  
 (immunoassay of human anti-AFP antibody by **time-**  
**resolved** fluorometry; preparation of aryldiketones and their  
 complexes with rare earth elements as luminescent labeling reagents for  
 protein, peptide, amino acid, and nucleic acid)

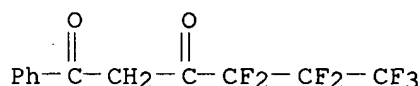
RN 326-06-7 CAPLUS

CN 1,3-Butanedione, 4,4,4-trifluoro-1-phenyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



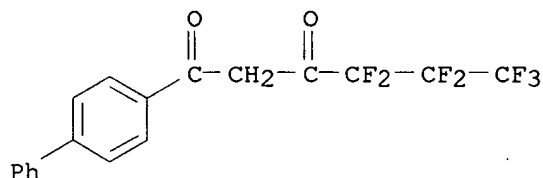
RN 53580-21-5 CAPLUS

CN 1,3-Hexanedione, 4,4,5,5,6,6,6-heptafluoro-1-phenyl- (9CI) (CA INDEX NAME)



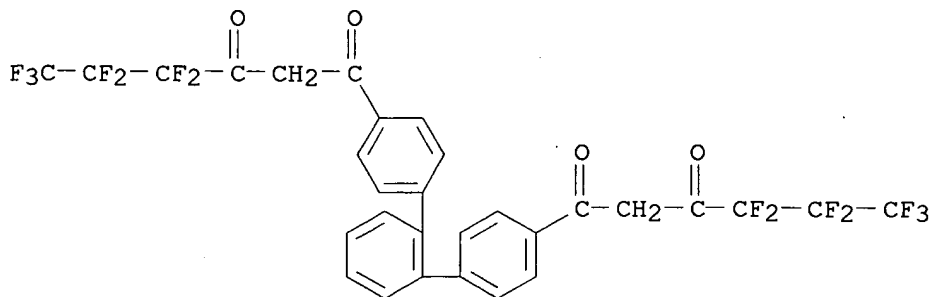
RN 171666-86-7 CAPLUS

CN 1,3-Hexanedione, 1-[1,1'-biphenyl]-4-yl-4,4,5,5,6,6,6-heptafluoro- (9CI) (CA INDEX NAME)



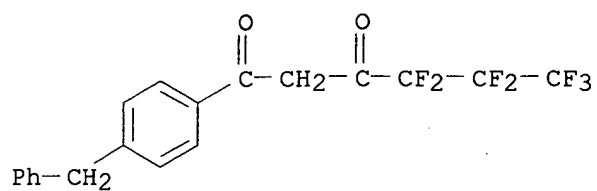
RN 200862-69-7 CAPLUS

CN 1,3-Hexanedione, 1,1'-[1,1':2',1''-terphenyl]-4,4''-diylbis[4,4,5,5,6,6,6-heptafluoro- (9CI) (CA INDEX NAME)

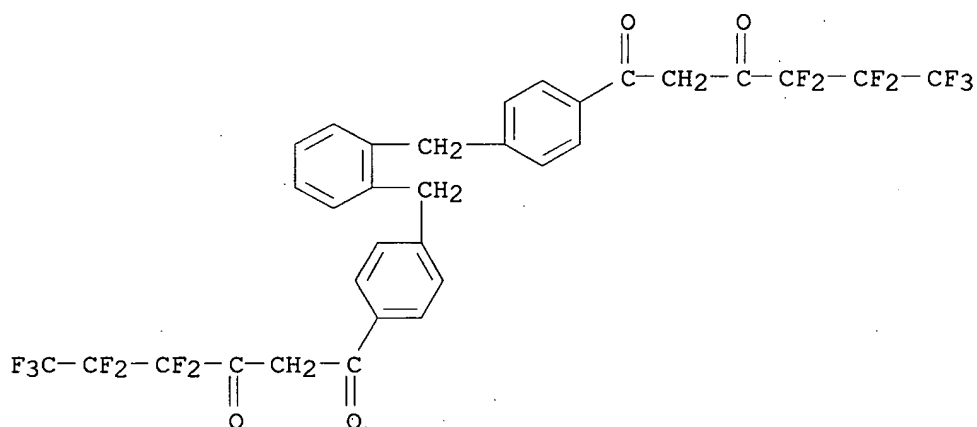


RN 515163-00-5 CAPLUS

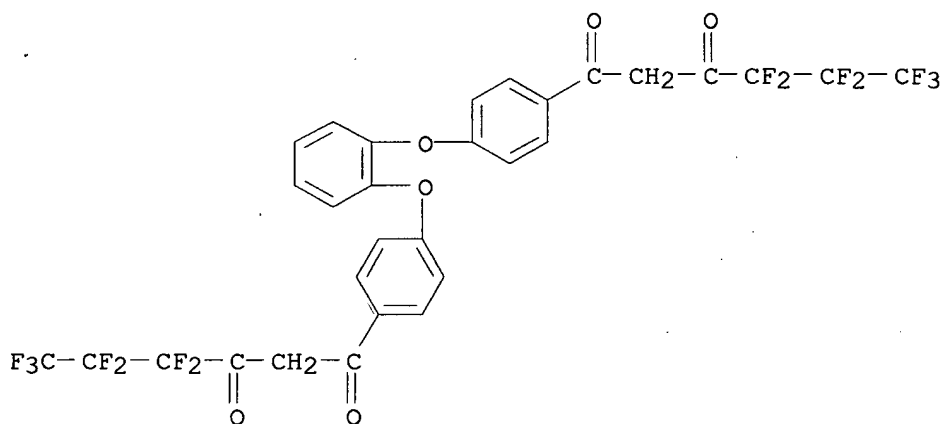
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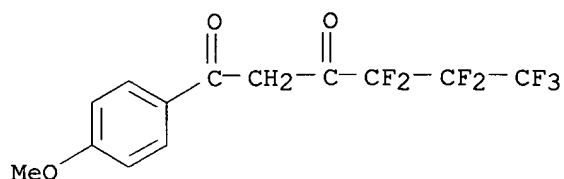
RN 515163-02-7 CAPLUS  
 CN 1,3-Hexanedione, 1,1'-[1,2-phenylenebis(methylene-4,1-phenylene)]bis[4,4,5,5,6,6,6-heptafluoro- (9CI) (CA INDEX NAME)



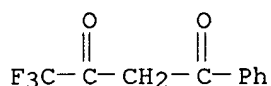
RN 515163-03-8 CAPLUS  
 CN 1,3-Hexanedione, 1,1'-[1,2-phenylenebis(oxy-4,1-phenylene)]bis[4,4,5,5,6,6,6-heptafluoro- (9CI) (CA INDEX NAME)



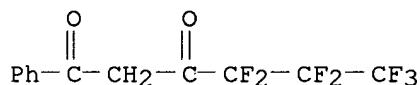
RN 515163-04-9 CAPLUS  
 CN 1,3-Hexanedione, 4,4,5,5,6,6,6-heptafluoro-1-(4-methoxyphenyl)- (9CI) (CA INDEX NAME)



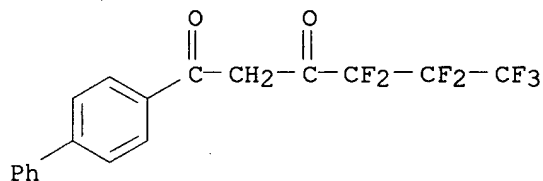
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 RL: ARG (Analytical reagent use); PRP (Properties); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses) (preparation of aryldiketones and their complexes with rare earth elements as luminescent labeling reagents for protein, peptide, amino acid, and nucleic acid)  
 RN 326-06-7 CAPLUS  
 CN 1,3-Butanedione, 4,4,4-trifluoro-1-phenyl- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



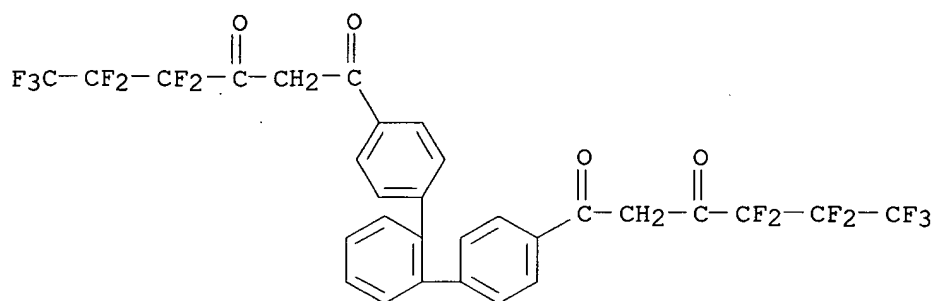
RN 53580-21-5 CAPLUS  
 CN 1,3-Hexanedione, 4,4,5,5,6,6,6-heptafluoro-1-phenyl- (9CI) (CA INDEX NAME)



RN 171666-86-7 CAPLUS  
 CN 1,3-Hexanedione, 1-[1,1'-biphenyl]-4-yl-4,4,5,5,6,6,6-heptafluoro- (9CI) (CA INDEX NAME)

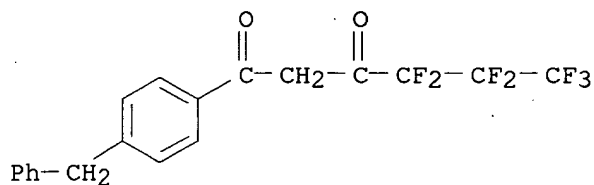


RN 200862-69-7 CAPLUS  
 CN 1,3-Hexanedione, 1,1'-[1,1':2',1''-terphenyl]-4,4''-diylbis[4,4,5,5,6,6,6-heptafluoro- (9CI) (CA INDEX NAME)



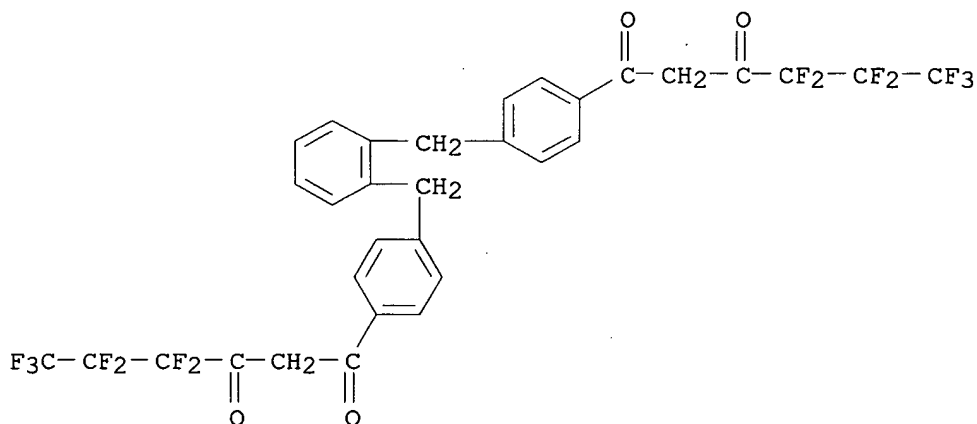
RN 515163-00-5 CAPLUS

CN 1,3-Hexanedione, 4,4,5,5,6,6,6-heptafluoro-1-[4-(phenylmethyl)phenyl]-  
(9CI) (CA INDEX NAME)



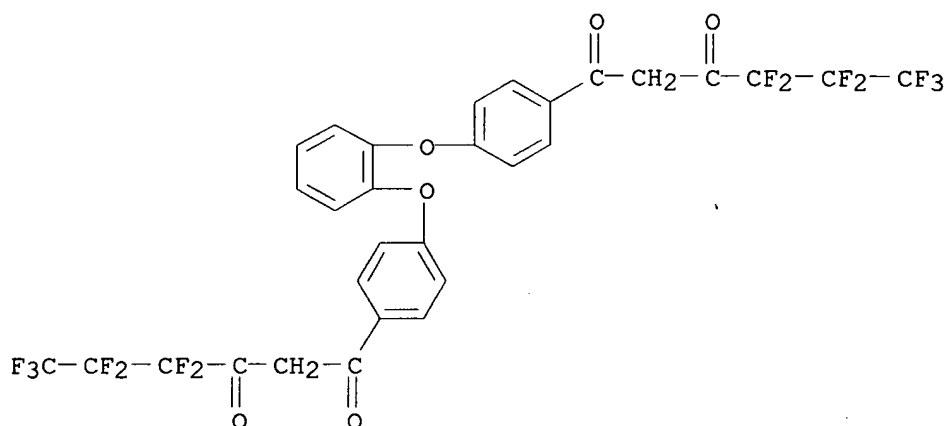
RN 515163-02-7 CAPLUS

CN 1,3-Hexanedione, 1,1'-[1,2-phenylenebis(methylene-4,1-phenylene)]bis[4,4,5,5,6,6,6-heptafluoro- (9CI) (CA INDEX NAME)

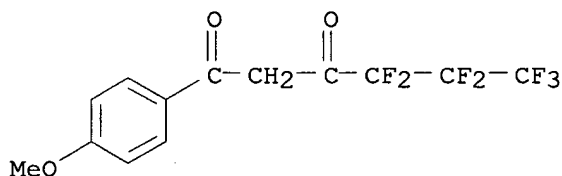


RN 515163-03-8 CAPLUS

CN 1,3-Hexanedione, 1,1'-[1,2-phenylenebis(oxy-4,1-phenylene)]bis[4,4,5,5,6,6,6-heptafluoro- (9CI) (CA INDEX NAME)

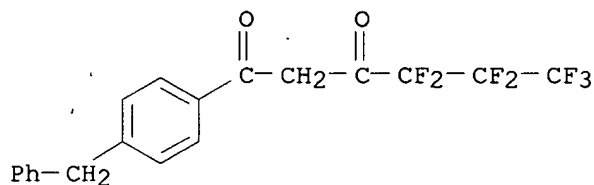


RN 515163-04-9 CAPLUS  
 CN 1,3-Hexanedione, 4,4,5,5,6,6,6-heptafluoro-1-(4-methoxyphenyl)- (9CI) (CA INDEX NAME)

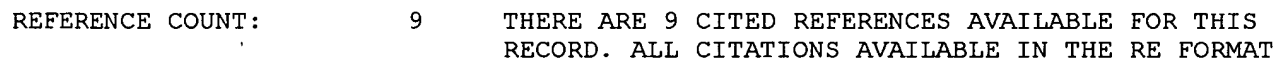
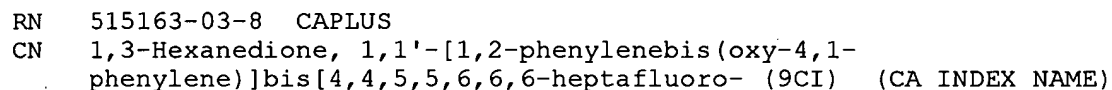


IT **515163-00-5P**, 1-(4-Benzylphenyl)-1,3-dioxo-4,4,5,5,6,6,6-heptafluorohexane **515163-02-7P**, 1,2-Bis[4-(4,4,5,5,6,6,6-heptafluoro-3-oxohexanoyl)benzyl]benzene **515163-03-8P**, 1,2-Bis[4-(4,4,5,5,6,6,6-heptafluoro-3-oxohexanoyl)phenoxy]benzene  
 RL: ARG (Analytical reagent use); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)  
 (preparation of aryldiketones and their complexes with rare earth elements as luminescent labeling reagents for protein, peptide, amino acid, and nucleic acid)

RN 515163-00-5 CAPLUS  
 CN 1,3-Hexanedione, 4,4,5,5,6,6,6-heptafluoro-1-[4-(phenylmethyl)phenyl]- (9CI) (CA INDEX NAME)



RN 515163-02-7 CAPLUS  
 CN 1,3-Hexanedione, 1,1'-[1,2-phenylenebis(methylene-4,1-phenylene)]bis[4,4,5,5,6,6,6-heptafluoro- (9CI) (CA INDEX NAME)



L13 ANSWER 9 OF 18 CAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 2002:113698 CAPLUS  
DOCUMENT NUMBER: 136:147466  
TITLE: Fluorometric detection of DNA using **lanthanide**  
chelate label  
INVENTOR(S): Nishiya, Yoshiaki; Kimura, Naoki; Tejima, Shinichi;  
Matsumoto, Kazuko  
PATENT ASSIGNEE(S): Toyobo Co., Ltd., Japan  
SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.  
CODEN: JKXXAF  
DOCUMENT TYPE: Patent  
LANGUAGE: Japanese  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002045200	A2	20020212	JP 2000-235554	20000803
PRIORITY APPLN. INFO.:			JP 2000-235554	20000803
AB A method for nucleic acid detection using oligonucleotide primers labeled				

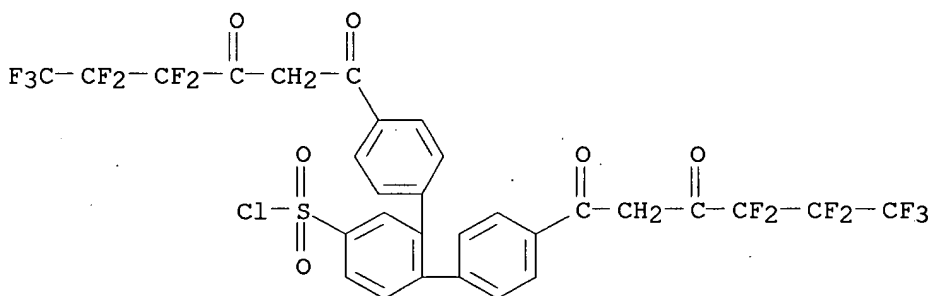
with fluorescent substance containing **lanthanide** chelate, represented by a formula Ln-S-dNTP (Ln = **lanthanide** metal ligand, S = spacer, dNTP = deoxyribonucleotide triphosphate derivative), is disclosed. Fluorescence detection after DNA amplification is used for detection of genetic mutations, oncogene mutations, in particular. A tetradentate  $\beta$ -diketonate **europium** chelate, 4,4'-bis(1'',1'',1'',2'',2'',3'', 3''-heptafluoro-4'',6''-hexanedion-6''-yl)- chlorosulfo-o-terphenyl (BHHCT)-Eu<sup>3+</sup>, was attached to a **streptavidin**-bovine serum albumin conjugate for **time-resolved** fluorometric detection of  $\lambda$  DNA by hybridization with a biotinylated probe DNA in a microtiter well. The method gave a detection limit of 23 pg/well (solid-phase measurement) and 4 pg/well (solution-phase measurement) for specific DNA.

IT 200862-70-0D, Eu<sup>3+</sup> complex 395638-89-8

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses) (fluorometric detection of DNA using **lanthanide** chelate label)

RN 200862-70-0 CAPLUS

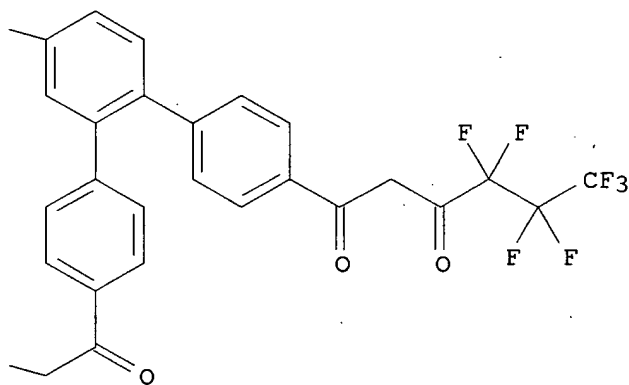
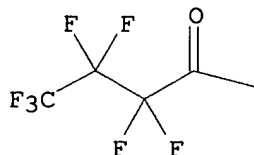
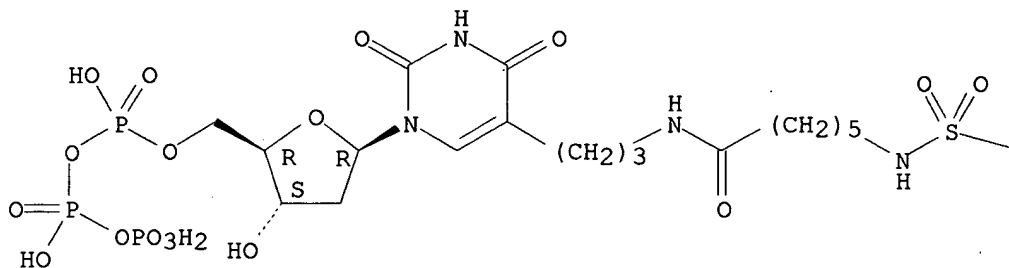
CN [1,1':2',1''-Terphenyl]-4'-sulfonyl chloride, 4,4''-bis(4,4,5,5,6,6,6-heptafluoro-1,3-dioxohexyl)- (9CI) (CA INDEX NAME)



RN 395638-89-8 CAPLUS

CN Uridine 5'-(tetrahydrogen triphosphate), 5-[3-[[6-[[[4,4''-bis(4,4,5,5,6,6,6-heptafluoro-1,3-dioxohexyl)[1,1':2',1''-terphenyl]-5'-yl]sulfonyl]amino]-1-oxohexyl]amino]propyl]-2'-deoxy- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L13 ANSWER 10 OF 18 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:639033 CAPLUS

DOCUMENT NUMBER: 137:252534

TITLE: Quantitative measurement of 17 $\beta$ -estradiol and  
estriol in river water by ~~time-~~  
**resolved** fluoroimmunoassay

AUTHOR(S): Majima, Keisuke; Fukui, Takashi; Yuan, Jingli; Wang,  
Guilan; Matsumoto, Kazuko

CORPORATE SOURCE: Department of Chemistry, Advanced Research Institute  
for Science and Engineering, Waseda University, Tokyo,  
169-8555, Japan

SOURCE: Analytical Sciences (2002), 18(8), 869-874  
CODEN: ANSCEN; ISSN: 0910-6340

PUBLISHER: Japan Society for Analytical Chemistry



DOCUMENT TYPE: Journal

LANGUAGE: English

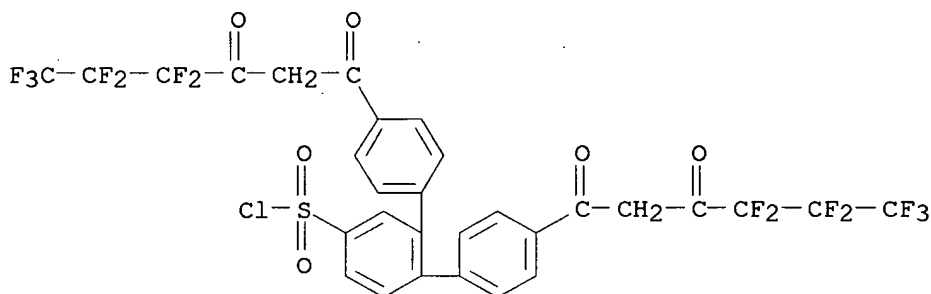
AB A sensitive method for detecting  $17\beta$ -estradiol (E2) and estriol (E3) in river water was developed, based on the **time-resolved** fluoroimmunoassay by using a fluorescent Eu chelate label, 4,4'-bis(1'',1'',1'',2'',2'',3'',3''-heptafluoro-4'',6''-hexanedion-6''-yl)-chlorosulfo-o-terphenyl (BHHCT)-Eu<sup>3+</sup>. In the E2 assay, microtiter plates were coated with the E2-bovine serum albumin (BSA) conjugate. The anti- $17\beta$ -estradiol antibody, the biotinylated goat anti-rabbit IgG antibody and the BHHCT-Eu<sup>3+</sup> labeled **streptavidin** (SA)-BSA conjugate were used. In the E3 assay, the goat anti-rabbit IgG antibody was coated on a microtiter plate. The anti-estriol antibody and the BHHCT-Eu<sup>3+</sup> labeled E3-BSA conjugate were used. The detection limits for E2 and E3 were 2.3 pg/mL and 4.3 pg/mL, resp., and the anal. recoveries were 95-120%. Quant. measurement of estrogens in river water was carried out for Kanda River (Tokyo, Japan) by using the method. The E2 and E3 levels were 32 pg/mL and 5.5 pg/mL, resp. The detection limits of the present method are in the same orders of magnitude as those of ELISA for E2, and are 1-2 orders of magnitude better for E3.

IT 200862-70-0D, europium 3+ complexes

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses) (quant. measurement of  $17\beta$ -estradiol and estriol in river water by **time-resolved** fluoroimmunoassay using)

RN 200862-70-0 CAPLUS

CN [1,1':2',1''-Terphenyl]-4'-sulfonyl chloride, 4,4''-bis(4,4,5,5,6,6,6-heptafluoro-1,3-dioxohexyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 11 OF 18 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:697547 CAPLUS

DOCUMENT NUMBER: 138:51667

TITLE: Fluorescent **lanthanide** chelates for biological systems

AUTHOR(S): Matsumoto, Kazuko; Nojima, Takahiko; Sano, Hiroki; Majima, Keisuke

CORPORATE SOURCE: Department of Chemistry, and Advanced Research Institute for Science and Engineering, Waseda University, Tokyo, 169-8555, Japan

SOURCE: Macromolecular Symposia (2002), 186(IUPAC 9th International Symposium on Macromolecule-Metal Complexes, 2001), 117-121

CODEN: MSYMEC; ISSN: 1022-1360

PUBLISHER: Wiley-VCH Verlag GmbH

DOCUMENT TYPE: Journal

LANGUAGE: English

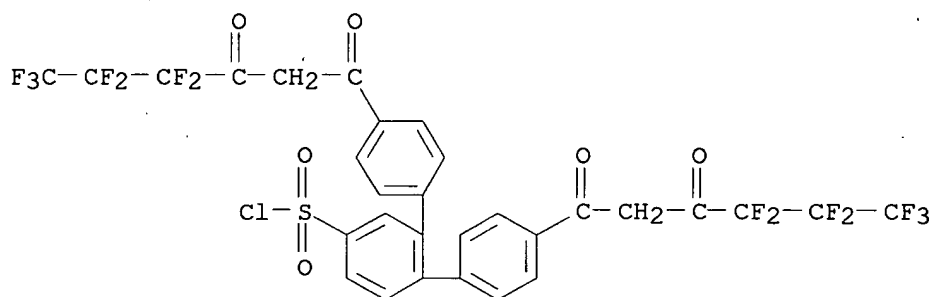
AB Certain **lanthanide** chelate complexes are known to emit strong fluorescence with very distinct phys. properties that are different from those of organic fluorescent compds., as the fluorescence of

**lanthanide** complexes is long-lived with a half decay-time of several hundred microseconds to 2 ms. The complexes are excited by UV light and emit fluorescence in the visible region. The emission profile is very sharp and the wavelength is specific to each metal; for instance, Eu<sup>3+</sup> complexes emit at 615 nm and Tb<sup>3+</sup> complexes at 545 nm regardless of the ligand. These properties indicate **lanthanide** complexes can be excellent fluorescence labels for proteins and DNAs and provide highly sensitive detection methods in biotechnol. when **time-resolved** fluorometry is employed. Among many labels we have developed, BHHCT-Eu<sup>3+</sup> and BPTA-Tb<sup>3+</sup> are suitable for immunoassay, DNA hybridization assay, and DNA chip technol. Homogeneous DNA hybridization assay systems using fluorescence resonance energy transfer and fluorescence intercalators will be introduced.

IT 200862-70-0D, complex with **europium**, conjugates with bovine serum albumin  
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses) (fluorescent **lanthanide** chelates can be used as labeling reagents for proteins and nucleic acids)

RN 200862-70-0 CAPLUS

CN [1,1':2',1''-Terphenyl]-4'-sulfonyl chloride, 4,4''-bis(4,4,5,5,6,6,6-heptafluoro-1,3-dioxohexyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 12 OF 18 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:865470 CAPLUS

DOCUMENT NUMBER: 138:381580

TITLE: A new **europium**  $\beta$ -diketone chelate for ultrasensitive **time-resolved** fluorescence immunoassays

AUTHOR(S): Wu, Feng-Bo; Zhang, Chao

CORPORATE SOURCE: Department of Isotope, China Institute of Atomic Energy, Beijing, 102413, Peop. Rep. China

SOURCE: Analytical Biochemistry (2002), 311(1), 57-67  
 CODEN: ANBCA2; ISSN: 0003-2697

PUBLISHER: Elsevier Science

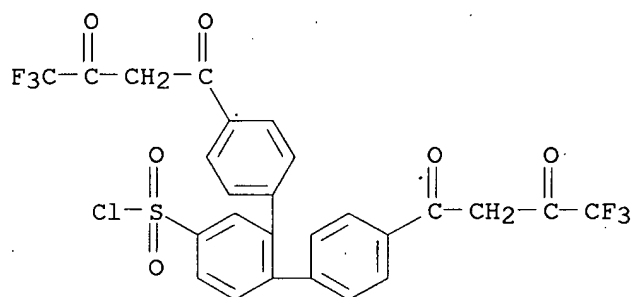
DOCUMENT TYPE: Journal

LANGUAGE: English

AB 4,4''-Bis(1'',1'',1'''-trifluoro-2'',4''-butanedione-6'''-yl)-chlorosulfo-o-terphenyl (BTBCT) was synthesized by modifying the structure of the reported BHHCT. In comparison with the original BHHCT, the detection sensitivity of BTBCT-Eu chelate in aqueous solution was improved .apprx.8 times by **time-resolved** fluorescence measurement. To construct sensitive TRFIAs with the use of BTBCT-Eu chelate as the fluorescent label, **streptavidin**-BSA conjugate was prepared by the maleimide-thiol method and labeled by BTBCT. The **streptavidin**-BSA conjugate and its BTBCT-labeled complex were affinity-purified using 2-iminobiotin-agarose as binding reagent. With **streptavidin**-BSA-BTBCT-Eu complex as signal generation reagent, a highly sensitive

indirect serum hTSH TR-IFMA was developed. The low limit of detection (LLD) of the TSH TR-IFMA was 0.011 mIU/L with 10 µl of sample volume, corresponding to .apprx.337900 mols. per test. To evaluate the utility of BTBCT-Eu label in direct TRFIAs, a competitive serum T4 TRFIA was developed with T4-BSA-BTBCT-Eu complex as competing tracer. The measurements obtained by the present TSH TR-IFMA or T4 TRFIA correlated well with those obtained by com. Wallac TSH DELFIA Ultra or T4 DELFIA, resp. Primary results show that BTBCT can be employed as a powerful labeling material for constructing ultrasensitive TRFIAs.

IT 525560-81-0DP, complex with **europium**  
 RL: ARU (Analytical role, unclassified); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation)  
 (BTBCT; **europium** β-diketone chelate for ultrasensitive **time-resolved** fluorescence immunoassays)  
 RN 525560-81-0 CAPLUS  
 CN [1,1':2',1''-Terphenyl]-4'-sulfonyl chloride, 4,4''-bis(4,4,4-trifluoro-1,3-dioxobutyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 13 OF 18 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:168959 CAPLUS

DOCUMENT NUMBER: 134:337813

TITLE: Synthesis of a terbium fluorescent chelate and its application to **time-resolved** fluoroimmunoassay

AUTHOR(S): Yuan, Jingli; Wang, Guilan; Majima, Keisuke; Matsumoto, Kazuko

CORPORATE SOURCE: Department of Chemistry, Waseda University Japan  
 Science and Technology Corporation, Shinjuku-ku Tokyo, 169-8555, Japan

SOURCE: Analytical Chemistry (2001), 73(8), 1869-1876  
 CODEN: ANCHAM; ISSN: 0003-2700

PUBLISHER: American Chemical Society

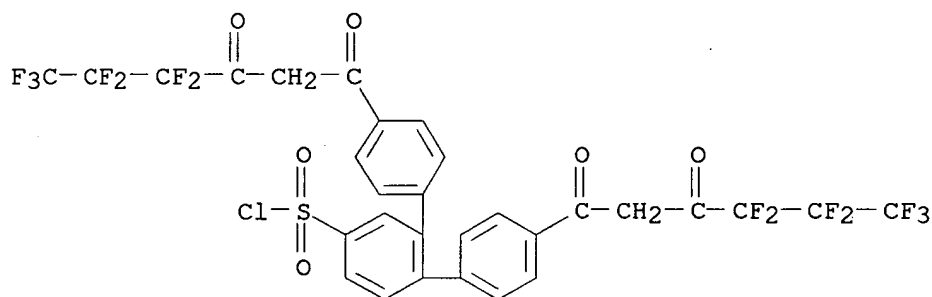
DOCUMENT TYPE: Journal

LANGUAGE: English

AB A new nonadentate ligand, N, N, N1, N1-[2,6-bis(3'-aminomethyl-1'-pyrazolyl)-4-phenylpyridine]tetrakis(acetic acid) (BPTA) for a Tb3+ fluorescent complex was synthesized. The Tb3+ complex is strongly fluorescent, having a large fluorescence quantum yield of 1.00 and very long fluorescence lifetime of 2.681 ms in 0.05 M borate buffer of pH 9.1. **Streptavidin** (SA) was labeled with BPTA by using its succinimidyl monoester, and the BPTA-Tb3+-labeled SA was used in sandwich-type **time-resolved** fluoroimmunoassay (TR-FIA) of α-fetoprotein (AFP) and carcinoembryonic antigen (CEA) in human sera. The Tb3+-labeled SA was also used in competitive-type TR-FIA of bensulfuron-Me (BSM) in water. The detection limits of these assays are 42 pg/mL for AFP, 70 pg/mL for CEA, and 0.4 ng/mL for BSM. In addition, a new simultaneous measurement method for AFP and CEA in a human serum

sample was developed by using 4,4'-bis(1'',1'',1'',2'',2'',3'',3''-heptafluoro-4'',6''-hexanedion-6''-yl)chlorosulfo-o-terphenyl (BHHCT)-Eu3+-labeled anti-AFP antibody, biotinylated anti-CEA antibody, and BPTA-Tb3+-labeled SA. The concns. of AFP and CEA in 39 human serum samples were determined, and the results were compared with those of the independently determined AFP and CEA by TR-FIA with a single-label method. A good correlation was obtained with the correlation coeffs. of 0.991 for AFP and 0.994 for CEA.

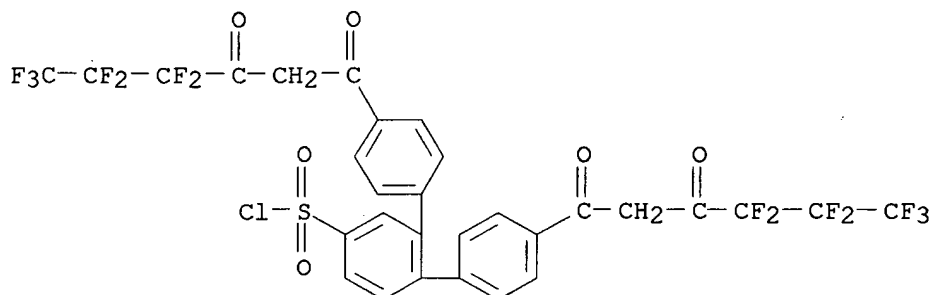
IT 200862-70-0D, complex with **europium**  
 RL: ARU (Analytical role, unclassified); ANST (Analytical study)  
 (terbium fluorescent chelate synthesis and its application to  
**time-resolved** fluoroimmunoassay)  
 RN 200862-70-0 CAPLUS  
 CN [1,1':2',1''-Terphenyl]-4''-sulfonyl chloride, 4,4''-bis(4,4,5,5,6,6,6-heptafluoro-1,3-dioxohexyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 14 OF 18 CAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 1999:172420 CAPLUS  
 DOCUMENT NUMBER: 130:293492  
 TITLE: **Time-resolved** fluorometric detection of DNA using a tetradentate  $\beta$ -diketonate **europium** chelate as a label  
 AUTHOR(S): Yoshikawa, Kenji; Yuan, Jingli; Matsumoto, Kazuko; Kimura, Hiroko  
 CORPORATE SOURCE: Department of Chemistry, Waseda University, Tokyo, 169-8555, Japan  
 SOURCE: Analytical Sciences (1999), 15(2), 121-124  
 CODEN: ANSCEN; ISSN: 0910-6340  
 PUBLISHER: Japan Society for Analytical Chemistry  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English  
 AB A tetradentate  $\beta$ -diketonate **europium** chelate, 4,4'-bis(1'',1'',1'',2'',2'',3'',3''-heptafluoro-4'',6''-hexanedion-6''-yl)- chlorosulfo-o-terphenyl (BHHCT)-Eu3+, was labeled to a **streptavidin**-bovine serum albumin conjugate for **time-resolved** fluorometric detection of  $\lambda$ DNA by hybridization with a biotinylated probe DNA in a microtiter well. The method gave a detection limit of 23 pg/well (solid-phase measurement) and 4 pg/well (solution-phase measurement) for specific DNA.  
 IT 200862-70-0D, 4,4'-Bis(1'',1'',1'',2'',2'',3'',3''-heptafluoro-4'',6''-hexanedion-6''-yl)-chlorosulfo-o-terphenyl, **europium** complexes  
 RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
 ( $\lambda$ DNA detection by **time-resolved** fluorometry using BHHCT-Eu3+-labeled **streptavidin**-bovine serum albumin conjugate and hybridization with biotinylated probe DNA in microtiter

well)  
 RN 200862-70-0 CAPLUS  
 CN [1,1':2',1''-Terphenyl]-4'-sulfonyl chloride, 4,4''-bis(4,4,5,5,6,6,6-heptafluoro-1,3-dioxohexyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 15 OF 18 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:766666 CAPLUS

DOCUMENT NUMBER: 132:134277

TITLE: Simultaneous Determination of  $\alpha$ -Fetoprotein and Carcinoembryonic Antigen in Human Serum by **Time-Resolved** Fluoroimmunoassay

AUTHOR(S): Matsumoto, Kazuko; Yuan, Jingli; Wang, Guilan; Kimura, Hiroko

CORPORATE SOURCE: Department of Chemistry, Waseda University, Japan  
 Science and Technology Corporation, Tokyo, 169-8555, Japan

SOURCE: Analytical Biochemistry (1999), 276(1), 81-87  
 CODEN: ANBCA2; ISSN: 0003-2697

PUBLISHER: Academic Press

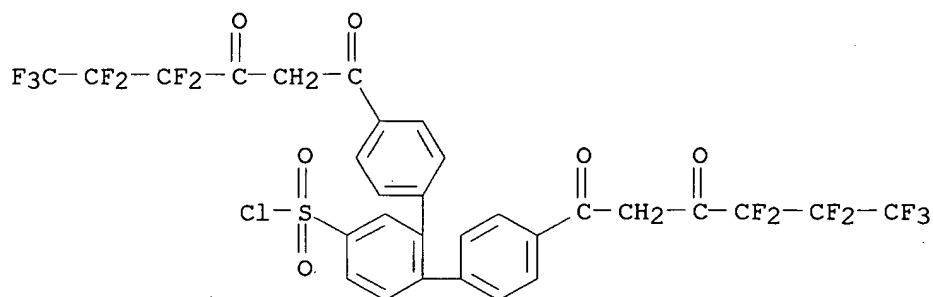
DOCUMENT TYPE: Journal

LANGUAGE: English

AB A novel simultaneous measurement method for  $\alpha$ -fetoprotein (AFP) and carcinoembryonic antigen (CEA) in human sera by **time-resolved** fluoroimmunoassay (TR-FIA) is described. The proposed approach combines the use of **europium**-labeled anti-AFP antibody for AFP TR-FIA and biotinylated anti-CEA antibody complexed to samarium-labeled **streptavidin** for CEA TR-FIA. A 96-well microtiter plate coated with a mixture of anti-AFP and anti-CEA monoclonal antibodies was used for the assay. After it was reacted with a solution containing AFP and CEA, a mixture of anti-AFP antibody labeled with BHHCT-Eu3+ and biotinylated anti-CEA antibody was added. The AFP concentration was determined by measuring the solid-phase fluorescence of the **europium**-labeled anti-AFP antibody at 615 nm. Then a BHHCT-Sm3+-labeled **streptavidin**-bovine serum albumin conjugate (SA-BSA) was added to react with the biotinylated anti-CEA antibody. After the reaction, the unreacted SA-BSA was washed out, and a 0.1 M NaOH solution containing  $1.0 \times 10^{-5}$  M TOPO and 0.05% SDS was added to dissociate the samarium-labeled SA-BSA in the immune complex on the surface of the well into the solution. The CEA concentration was determined by measuring the solution fluorescence of 643 nm from the samarium-labeled SA-BSA. The present method gives detection limits of 0.07 ng/mL for AFP and 0.3 ng/mL for CEA. The coefficient variations of the method are less than 7%, and the recoveries are in the range of 90-110% for serum samples. The AFP and CEA concns. in 27 human serum samples were determined by the present method as well as by single assay for comparison. A good correlation was obtained with the

correlation coeffs. of 0.990 for AFP and 0.973 for CEA. (c) 1999 Academic Press.

IT 200862-70-0D, complex with **europium** or samarium  
RL: ARG (Analytical reagent use); BSU (Biological study, unclassified);  
ANST (Analytical study); BIOL (Biological study); USES (Uses)  
(BHHCT; simultaneous determination of  $\alpha$ -fetoprotein and carcinoembryonic  
antigen in human serum by **time-resolved**  
fluoroimmunoassay)  
RN 200862-70-0 CAPLUS  
CN [1,1':2',1''-Terphenyl]-4'-sulfonyl chloride, 4,4''-bis(4,4,5,5,6,6,6-  
heptafluoro-1,3-dioxohexyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS  
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 16 OF 18 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:62808 CAPLUS

DOCUMENT NUMBER: 130:233335

TITLE: Highly sensitive quantitation of methamphetamine by  
**time-resolved** fluoroimmunoassay  
using a new **europium** chelate as a label

AUTHOR(S): Kimura, Hiroko; Yuan, Jingli; Wang, Guilan; Matsumoto,  
Kazuko; Mukaida, Masahiro

CORPORATE SOURCE: Department of Forensic Medicine, Juntendo University  
School of Medicine, Tokyo, Japan

SOURCE: Journal of Analytical Toxicology (1999), 23(1), 11-16  
CODEN: JATOD3; ISSN: 0146-4760

PUBLISHER: Preston Publications

DOCUMENT TYPE: Journal

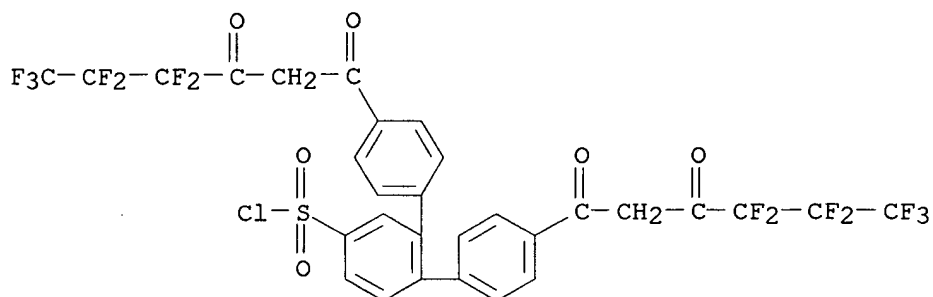
LANGUAGE: English

AB A simple and highly sensitive **time-resolved**  
fluoroimmunoassay of methamphetamine (MA) using a new fluorescent  
**europium** chelate (BHHCT-Eu<sup>3+</sup>) as a label is described. Two  
variations of competitive immunoassay were attempted. In the first  
(one-step) assay, microtiter plates coated with anti-MA were used, and the  
new label was bound to a conjugate of bovine serum albumin and  
N-(4-aminobutyl)-MA (MA-BSA). In the second (two-step) assay, instead of  
the labeled MA-BSA, biotinylated MA-BSA and BHHCT-Eu<sup>3+</sup>-labeled  
**streptavidin**-BSA were used. The lowest measurable concns. of MA  
for the one-step and the two-step methods were 1 ng/mL (25 pg/assay) and 1  
pg/mL (25 fg/assay), resp. These were 10 to 1000 times superior to the  
detection limits of MA in any other immunoassay. Intra-assay coefficient of  
variation was approx. 2-8% at eight different concns. (n = 4). Anal. of  
34 urine samples with the new method and conventional gas chromatog.  
showed a good correlation (r = 0.954). The high detectability of the  
present assay also enabled segmental hair anal. with a few centimeters of  
a hair.

IT 200862-70-0D, **europium** complexes

RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
(highly sensitive quantitation of methamphetamine by **time-**

resolved fluoroimmunoassay using new **europium** chelate  
as label)  
RN 200862-70-0 CAPLUS  
CN [1,1':2',1''-Terphenyl]-4'-sulfonyl chloride, 4,4''-bis(4,4,5,5,6,6,6-heptafluoro-1,3-dioxohexyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 17 OF 18 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:14295 CAPLUS

DOCUMENT NUMBER: 128:86081

TITLE: A New Tetradentate  $\beta$ -Diketonate- **Europium** Chelate That Can Be Covalently Bound to Proteins for **Time-Resolved** Fluoroimmunoassay

AUTHOR(S): Yuan, Jingli; Matsumoto, Kazuko; Kimura, Hiroko  
CORPORATE SOURCE: Department of Chemistry Advanced Research Center for Science and Engineering, Waseda University, Tokyo, 169, Japan

SOURCE: Analytical Chemistry (1998), 70(3), 596-601  
CODEN: ANCHAM; ISSN: 0003-2700

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A new chlorosulfonylated tetradentate  $\beta$ -diketone, 4,4''-bis(1'',1'',1''',2'',2'',3'',3''-heptafluoro-4'',6''-hexanedion-6''-yl)chlorosulfo-o-terphenyl (BHHCT), was synthesized as a chelating label for Eu<sup>3+</sup>. BHHCT can be covalently bound to proteins under mild conditions and forms a strongly fluorescent chelate with Eu<sup>3+</sup>. Bovine serum albumin (BSA) and **streptavidin** (SA) were labeled with BHHCH-Eu<sup>3+</sup>, and the latter was used for **time-resolved** fluoroimmunoassay of  $\alpha$ -fetoprotein (AFP) in human sera. A remarkably high sensitivity was obtained, with a detection limit of 4.1 + 10<sup>-3</sup> pg/mL, which corresponds to an improvement of about 4-5 orders of magnitude, compared to those of all conventional immunoassays including fluoroimmunoassay, enzyme immunoassay, and RIA. The high sensitivity was attained both by strong fluorescence of the present label and by the extremely suppressed background level brought about by the direct labeling of proteins with the  $\beta$ -diketone-Eu<sup>3+</sup> complex. A general consideration and ideas are given for designing ideal label ligands for strongly fluorescent Eu<sup>3+</sup> complexes.

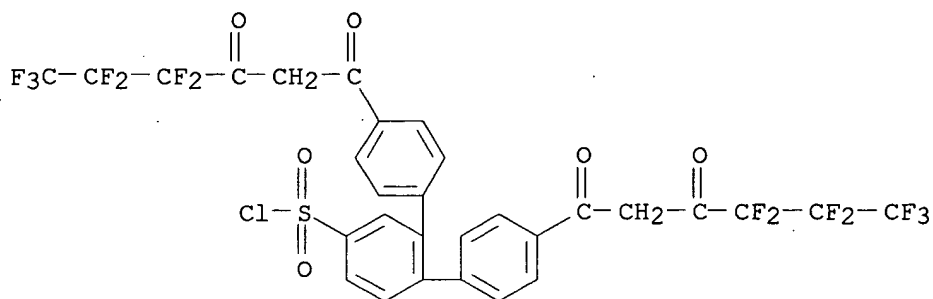
IT 200862-70-0P

RL: ARG (Analytical reagent use); RCT (Reactant); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(tetradentate  $\beta$ -diketonate- **europium** chelate covalently bound to proteins for fluoroimmunoassay)

RN 200862-70-0 CAPLUS

CN [1,1':2',1''-Terphenyl]-4'-sulfonyl chloride, 4,4''-bis(4,4,5,5,6,6,6-heptafluoro-1,3-dioxohexyl)- (9CI) (CA INDEX NAME)



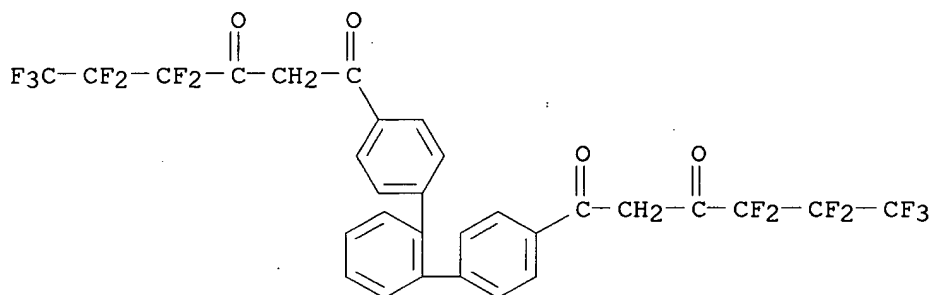
IT 200862-69-7P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(tetradentate  $\beta$ -diketonate- **europium** chelate covalently bound to proteins for fluoroimmunoassay)

RN 200862-69-7 CAPLUS

CN 1,3-Hexanedione, 1,1'-[1,1':2',1''-terphenyl]-4,4''-diylbis[4,4,5,5,6,6,6-heptafluoro- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT.

L13 ANSWER 18 OF 18 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:276723 CAPLUS

DOCUMENT NUMBER: 129:12782

TITLE: Sensitive **time-resolved** fluoroimmunoassay of human thyroid-stimulating hormone by using a new **europium** fluorescent chelate as a label

AUTHOR(S): Yuan, Jingli; Wang, Guilan; Kimura, Hiroko; Matsumoto, Kazuko

CORPORATE SOURCE: Department of Chemistry, Advanced Res. Center for Science and Engineering, Waseda Univ., Tokyo, 169, Japan

SOURCE: Analytical Sciences (1998), 14(2), 421-423  
CODEN: ANSCEN; ISSN: 0910-6340

PUBLISHER: Japan Society for Analytical Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The authors used **streptavidin**-bovine serum albumin conjugate labeled with BHHCT-Eu3+ in **time-resolved** fluoroimmunoassay of human TSH. The detection limit of the present method is  $1.9 + 10^{-3}$   $\mu$ IU/mL, which is a distinct improvement compared to those of the conventional RIA, EIA, and TR-FIA using other **europium** chelates.

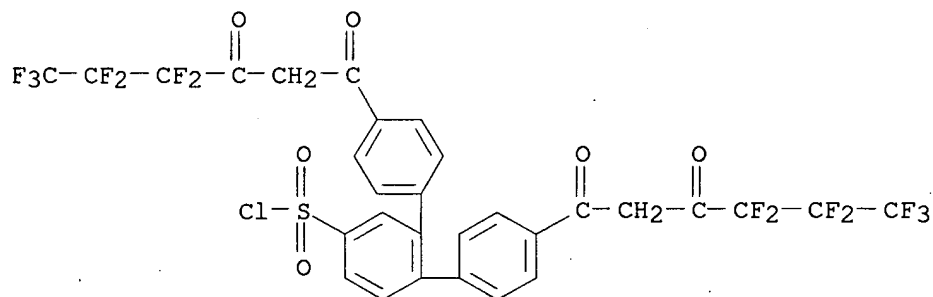
IT 200862-70-0D, **europium** complexes



RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)  
 (sensitive **time-resolved** fluoroimmunoassay of human  
 TSH by using a new **europium** fluorescent chelate as a label)

RN 200862-70-0 CAPLUS

CN [1,1':2',1''-Terphenyl]-4'-sulfonyl chloride, 4,4''-bis(4,4,5,5,6,6,6-heptafluoro-1,3-dioxohexyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS  
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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L16 4 S L13

L17 14 S L13

85143 CYTOKINE

123927 CYTOKINES

157036 CYTOKINE

(CYTOKINE OR CYTOKINES)

L18 1 (L16 OR L17) AND CYTOKINE

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L18 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:247614 CAPLUS

DOCUMENT NUMBER: 134:263165

TITLE: Highly sensitive **time-resolved**  
 fluorescence immunoassay for detecting  
**cytokine**

INVENTOR(S): Tashiro, Kei; Honjo, Tasuku; Ikegawa, Masaya;  
 Matsumoto, Kazuko

PATENT ASSIGNEE(S): Japan Science and Technology Corp., Japan

SOURCE: PCT Int. Appl., 62 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001023891	A1	20010405	WO 2000-JP6743	20000928
W: AU, CA, CN, CZ, HU, JP, KR, RU, US				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
CA 2385613	AA	20010405	CA 2000-2385613	20000928
AU 2000074486	A5	20010430	AU 2000-74486	20000928
EP 1221616	A1	20020710	EP 2000-962957	20000928
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY				
JP 3586243	B2	20041110	JP 2001-527226	20000928

JP 2004279429  
PRIORITY APPLN. INFO.:

A2 20041007

JP 2004-162594

20040531

JP 1999-277629

A 19990929

JP 2001-527226

A3 20000928

WO 2000-JP6743

W 20000928

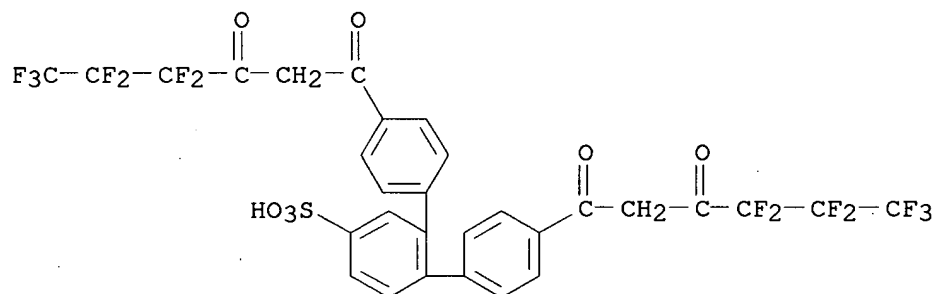
AB A highly sensitive method is provided for detecting a **cytokine** (e.g., CXC chemokine, stromal-derived factor-1) in a body fluid (e.g., serum, whole blood) sample by a **time-resolved** fluorescence immunoassay (TR-FIA). The method comprises a process for forming on a solid phase a complex composed of a trapped **cytokine** and a fluorescent moiety forming a coordination structure with a **lanthanoid** metal (e.g., **europium**), and a process for measuring the fluorescence from the fluorescent moiety. The complex is formed by binding five components sequentially in this order: (a) a first antibody possessing a moiety bound to the solid phase and a region capable of binding with **cytokine**; (b) **cytokine**; (c) a second antibody possessing a region capable of binding with **cytokine** and a moiety bound with **biotin**; (d) a connector possessing streptavidin or avidin and a fluorescent moiety capable of forming a coordination structure with a **lanthanoid** metal ion; and (e) a **lanthanoid** metal ion. The fluorescent moiety (e.g., 4,4'-bis(1",1",1",2",2",3",3"-heptafluoro-4",6"-hexadione-6"-yl)-sulfo-o-terphenyl) is represented by the general formula 3,5-(C3F7COCH2CO-p-C6H4)C6H3SO3N.

IT 331722-27-1

RL: ARG (Analytical reagent use); PEP (Physical, engineering or chemical process); ANST (Analytical study); PROC (Process); USES (Uses)  
(highly sensitive **time-resolved** fluorescence immunoassay for detecting **cytokine**)

RN 331722-27-1 CAPLUS

CN [1,1':2',1''-Terphenyl]-4'-sulfonic acid, 4,4''-bis(4,4,5,5,6,6,6-heptafluoro-1,3-dioxohexyl)- (9CI) (CA INDEX NAME)



REFERENCE COUNT:

2

THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

154.97

316.51

DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)

SINCE FILE

TOTAL

ENTRY

SESSION

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-13.87

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